Building Competitive City Regions in the Knowledge Economy

The Power of Business–Community–Educator Partnerships

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Building Competitive City Regions In the Knowledge Economy

The Power of Business–Community–Educator Partnerships

17 November 1999
Mississauga, Ontario

Proceedings from a one-day conference organized by:

- The Canadian Urban Institute,
- Council of Ontario Universities/OPAS,
- The Association of Colleges of Applied Arts & Technology of Ontario,
- The Office for Urban Economic Development, Ministry of Economic Development and Trade.

Chaired by The Honourable David Crombie, P.C.,
and facilitated by Steve Paikin, Host of Studio 2, TVOntario.

Ontario Canada

This conference benefited from the generous support of the Ministry of Economic Development and Trade, the Ministry of Energy, Science and Technology, the Ministry of Training, Colleges and Universities, and Human Resource Development Canada, and Industry Canada

Overview

Once upon a time, economic development meant producing glossy brochures and an advertising campaign to attract large corporations to set up business in your municipality. Times have changed.

Today, economic development means focusing on existing strengths in the community, creating a hospitable environment for start-ups, and thinking in terms of regional clusters, not individual communities.

Introduction: David Crombie

David Crombie opened the conference by welcoming participants and acknowledging the support of the day's sponsors, the Council of Ontario Universities, the Association of Applied Arts and Technology, the Ministry of Economic Development and Trade, Human Resources Development Canada, Industry Canada, and the Canadian Urban Institute.

Crombie talked about the way in which traditional political boundaries and jurisdictions are becoming irrelevant in the global knowledge economy. He made an analogy with the tribal maps of the Beaver people of northern British Columbia. These maps show where the fish and beaver are to be found, as well as safe places and dangerous places. They are not fixed once and for all, but change with the seasons. Similarly, our maps are changing as communities, educational institutions, and businesses form new partnerships across boundaries.

Traditional political boundaries and jurisdictions are becoming irrelevant in the global knowledge economy

Themes

During the symposium, a number of themes, a few controversies and several questions emerged:

1. The knowledge economy is about people, not technology. Several speakers emphasized this point. Because people are important, education and training, particularly at the postsecondary level, are an essential component of any economic development strategy. There is controversy surrounding the cuts to education: are they just cutting deadwood, or are they threatening future competitiveness? (Talented people and knowledge are becoming as important as financial and physical capital.)

2. Political boundaries do not reflect the real shape of cluster economies. For some people, the Golden Horseshoe stretches from Oshawa to Rochester.

3. The brain drain is still a problem. Educated Canadians are leaving Canada for the United States. Two of the reasons most often cited are the difficulty of getting venture capital for start-ups, and Canada's high taxes. Since venture capital is also tied to tax incentives, it seems that the tax structure in Canada is a barrier to innovation.

4. Despite the tax structure, venture capital is available in Canada. Businesses have to know how and where to find it.

5. The role of the government in Canadian economic development is changing. It is a participant, but less likely to be a leader. Businesses, communities, and institutions are more likely to be the driving force. After all, economic clusters need an "anchor," a strong local business or institutions with global reach.

6. Several of the successful examples of partnerships described at the conference were a response to the recession of the early 1980s. People get creative when they don't have much to lose and everything to gain. The question is: what is the motivation for today's partnerships?

7. Canada's level of spending on research and development as a percentage of GDP is lower than that of the United States or the United Kingdom. This is a legacy of Canada's traditional role as a resource-based, branch-plant economy. Apparently these attitudes are still pervasive. Although at least one speaker argued that quality is more important than quantity, most people saw this as a barrier to economic development.

8. Canadian business also underinvests in employee training and investment. Given the importance of people, this too is a barrier to development.

9. Canada also has a lower level of productivity than the United States. This gap is affecting Canadians' standard of living.

10. The knowledge economy is less about bricks-and-mortar-type development than about intangibles. These include education, intellectual property, unwritten knowledge, and "shared mythology." It is also about focusing on strengths, not about spreading efforts thinly by trying to be all things to all people.

Other weaknesses experienced by Ontario include:

- lack of policy direction
- expansion of student enrolment
- lack of institutional distinctiveness
- lack of health research council
- standards and performance measures are not developed sufficiently

David Lindsay
President and CEO, Ontario Jobs and Investment Board

David Lindsay provided an overview of the Ontario government's economic development report, A Road Map to Prosperity, released in March 1999. The purpose of this report was to identify how Ontario could become "the best place in North America to live, work, invest, and raise a family." It involved the largest consultation ever undertaken on the future of Ontario's economy: 35,000 discussion papers, seven regional conferences, and dozens of roundtables and focus groups.

The largest consultation ever undertaken on the future of Ontario's economy

Lindsay focused on three of the report's five themes:

- creating knowledge and skills for prosperity;
- creating an innovation culture;
- building on our industry and regional strengths.

(The other two are:

- creating a responsive research policy environment and research infrastructure
- enhancing profiles and networks at all levels)

The challenge of creating knowledge and skills for prosperity will be making the educational system more market-driven and market-responsive. Lindsay spoke of the need for:

- comparative performance measurements to allow prospective students to compare the programs of different postsecondary educational institutions with each other;
- collaborative programs and transferable credits between colleges and universities, so that students can create programs that combine theoretical and applied studies;
- a province- or nationwide accreditation system to validate the educational credentials of new Canadians;
- Internet-based distance learning;
- international business content in the curriculum, including foreign languages and opportunities for exchanges and internships.

It is not only educational institutions that must work to achieve this goal. Lindsay pointed out that one of the barriers to prosperity is the fact that Ontario business consistently under-invests in employee training and apprenticeships.

Governments also have a role to play, by targeting funding to correct mismatches between supply and demand in the workforce. The recent funding aimed at increasing enrollment in computer science and engineering programs is an example of this kind of initiative.

Creating an innovation culture calls for training in entrepreneurship, beginning at the school level. However, Lindsay acknowledged that in preparing the report, many people questioned whether entrepreneurship can be taught.

(Entrepreneurship can be fostered through government and university outreach programs in communities.)

Another significant barrier is the fact that Canadian business R&D spending is only about half that of R&D spending in the United States or Japan. Lindsay also pointed out the need for more rapid commercialization of new products, processes, and technologies. Government also has a role to play, by:

- showcasing local innovation so that the rest of the world hears about it;
- working with financial institutions to improve access to financing for start-up firms;
- using R&D funds to create world-class research institutions;
- streamlining the regulatory environment;
- making use of leading-edge technology in its own operations.

Finally, building on industry and regional strengths requires a new approach to regional economic development. Lindsay explained that traditionally, Ontario has structured economic development around the needs of northern and rural areas. Today, however, Ontario's seven largest urban economies account for 70% of all jobs and 78% of job growth. They are the province's economic engines.

A more effective approach would be to focus on economic clusters around the seven largest cities. These clusters compete with about 300 other clusters throughout North America. These clusters include:

- technology clusters in the Greater Toronto Area (GTA), the Kitchener-Waterloo area, and the Ottawa-Carleton area;
- the automotive clusters in the GTA and southwestern Ontario;
- the financial services cluster in the GTA;
- the agri-food cluster in the Guelph area;
- the wine and tourism cluster in the Niagara peninsula.

Clusters form around prosperous businesses and supporting local institutions. They cross municipal boundaries, yet are very much focused on local communities. Their leaders are executives, entrepreneurs, and university and college presidents.

A more effective approach would be to focus on economic clusters around the seven largest cities

Lindsay suggested that the role of government would be to base policy and investment decisions on the locally identified economic priorities in Ontario's clusters. He did not say whether the Ontario government is planning to take this approach, but challenged the participants to assume local leadership within the clusters.

Paul Davenport
President, University of Western Ontario

Paul Davenport began by restating the vision of Ontario as "the best place in North America to live, work, invest, and raise a family." He also stressed that the knowledge-based economy is about people, not technology, and pointed out that education is crucial in this approach. He outlined five important trends:

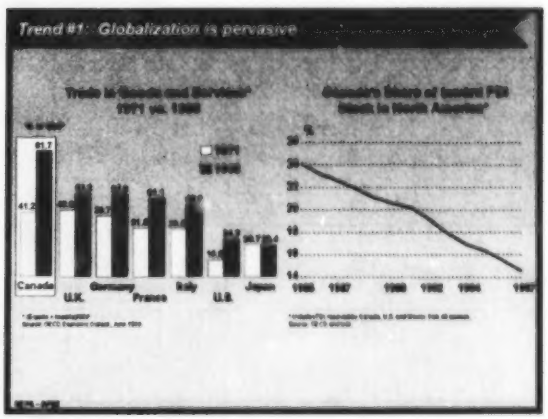
1. Globalization is pervasive.
2. The shift to knowledge workers dominates every sector of the economy.
3. The information highway is reshaping business and markets.
4. Innovation is the source of value-added growth.
5. Standards of living are determined by productivity growth.

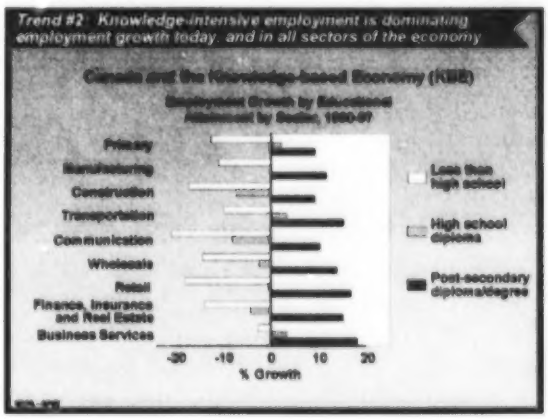
Davenport used statistics to demonstrate the fact that jobs are being created for postsecondary grads, but jobs for those with only a high school education or less are disappearing. Unemployment rates are much lower and average incomes are higher for those with postsecondary degrees. This trend is visible in all sectors: primary, manufacturing, construction, transportation, communication, wholesale, retail, financial services, and business services.

He cited a study from Illinois that found that for every dollar invested by the state in undergraduate education at the University of Illinois, the state got a return of $4.31 in tax revenues. This figure does not include the additional jobs created by the graduates. Interestingly, the rate of return is lower (although still positive) from professional education compared to bachelor's degrees. Clearly, postsecondary education is an essential economic investment.

However, Davenport noted that Canada has a "lacklustre productivity performance" and seems unable to "close the productivity gap" with the United States. Canadian productivity is about 80-83% that of the U.S. and this gap affects Canadians' standard of living. We have especially lost ground in the area of manufacturing.

He reiterated Lindsay's observation about Canada's poor R&D performance, citing statistics about the number of patents awarded





in the United States and Canada as a proportion of the overall population. The rate is twice or three times higher in the United States. Moreover, our rate of technology adoption is much lower than that of the United States. In other words, Canadian businesses aren't getting the information and the innovations they need to compete.

Publicly funded research does lead to industrial innovation. U.S. studies have shown that 73% of the research on which patents are based comes from public institutions. University research is essential to business.

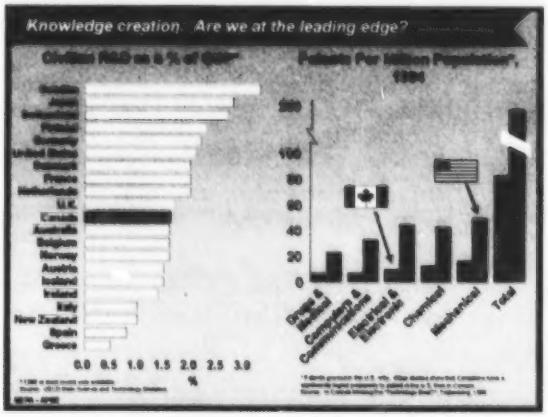
He acknowledged growing support by the federal and provincial governments for university research and identified several of the partnerships among business, postsecondary institutions and local government, including:

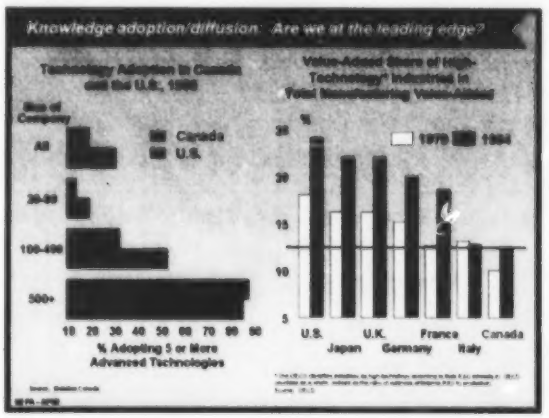
- Canadore College, Bombardier, Voyageur Airlines: aviation programs in North Bay;
- Fanshawe College, Ford Motor Company: tool and die technician programs in St. Thomas;
- University of Windsor, Chrysler Canada: automotive research in Windsor;
- Queen's University, Neurochem, Warner-Lambert: Alzheimer's, diabetes and heart disease research in Kingston;
- York University, Ashbury Biologicals, National Research Council, Johnson and Johnson: drug development using natural products in Toronto.

His own university, the University of Western Ontario, has also formed partnerships. The University has spun off companies in the areas of biotechnology, software and manufacturing. It licenses the technologies it develops to companies. It runs a university research park and biotechnology incubator.

Davenport said that each university has its own strengths that can be used to strengthen the city-region. The rules for success are chiefly:

- to aim for excellence—the global economy doesn't reward mediocrity;
- to involve students in research projects: "students are to technology transfer what mosquitoes are to malaria." ●





PANEL 1

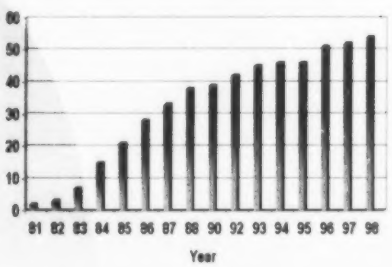
David Rowe
Director, University of Warwick Science Park *Via satellite*

David Rowe spoke to the conference from England, where he runs one of the U.K.'s 54 science parks. These are research centres affiliated with universities and local governments that act as business incubators for start-ups and help with technology transfer from university to industry. The U.K.'s 54 science parks have 1,400 to 1,500 tenant companies and employ about 25,000 people. More than half the investment comes from the tenant companies and other private companies, the rest from universities, local authorities, and government agencies. Most of the tenant companies are small: 75% have 15 or fewer employees. More than half are independent businesses: others are subsidiaries, or non-profit companies.

The University of Warwick Science Park was formed in 1982. At the time, the recession had hit Coventry, the city where the university is located. Coventry's economy was based on automobile manufacturing and unemployment was over 20%. The University and Coventry City Council came together to create the science park to diversify the local economy. Warwickshire County Council and an investment organization called West Midlands Enterprise also contributed. Although the partners had different goals in mind and different political agendas, they were able to agree on the science park as the means to those ends.

Today, the park employs 1,800 people on site. About 600 people have been relocated from the park to jobs elsewhere, and more than 1,000 jobs have been created indirectly because of the park. The park has helped to change Coventry's image from an automobile manufacturing city to a place for high-

Number of Operational Parks



Quote ...

"In my opinion the "best buy" available for those of us involved in serious economic development for the medium and longer term is a good Science Park"
Mr Harry Noble, Director Economic Planning and Development, Coventry City Council, 1982 - 1997

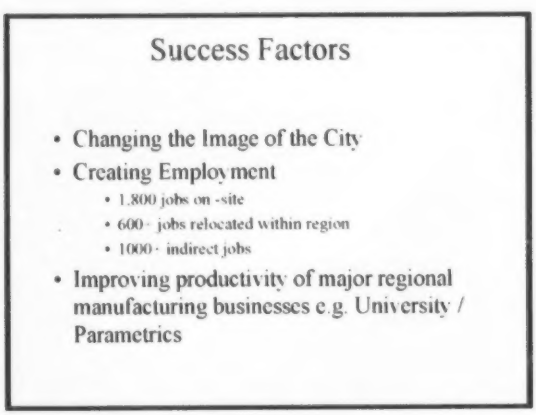
tech industry. For example, Parametrics, an American computer-aided design company, is now working with the university. Unemployment in Coventry is now lower than the national average and fewer than a quarter of the jobs in the city are in manufacturing (compared to 43% in 1984). Not all of these changes can be traced directly to the creation of the science park, but there is no question that the science park has contributed greatly to the turnaround.

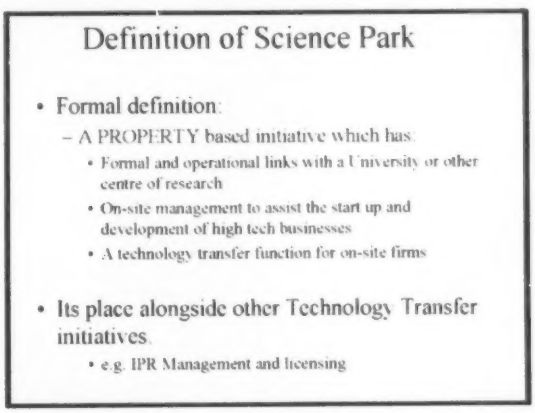
The role of the science park has changed over the years. The first five or six years were occupied with developing the property and focusing on technology transfer. Another four or five years were spent on providing business support for the tenant start-up companies. The last six or seven years have seen the creation of satellite sites and expanded business support activities.

Rowe explained that by business support he means:

- capital for innovation in companies;
- student projects within companies;
- marketing support for products and services;
- programs to help people move from corporate jobs into entrepreneurial jobs;
- new business creation.

The University of Warwick Science Park is an excellent example of the potential of partnerships for fostering economic development. One member of the Coventry City Council described the park as the "best buy" available in economic development terms.


Success Factors
• Changing the Image of the City
• Creating Employment
• 1,800 jobs on -site
• 600+ jobs relocated within region
• 1000+ indirect jobs
• Improving productivity of major regional manufacturing businesses e.g. University / Parametrics


Definition of Science Park
• Formal definition:
– A PROPERTY based initiative which has:
• Formal and operational links with a University or other centre of research
• On-site management to assist the start up and development of high tech businesses
• A technology transfer function for on-site firms
• Its place alongside other Technology Transfer initiatives.
• e.g. IPR Management and licensing

Michael Lazaridis
President, Research in Motion

Research in Motion is a manufacturing company that produces wireless e-mail, modem and pager technology. Founded in 1984 in Waterloo, it now employs 400 people in a state-of-the-art facility associated with a research and development centre.

Lazaridis talked about the importance of his company's links with the University of Waterloo, Wilfrid Laurier University and Conestoga College. He hires graduates from these universities and colleges and from McMaster and University of Toronto; he also invests in the universities. Research in Motion is also a founding member of Communitech, an umbrella group that acts as a single voice for hundreds of high-tech businesses in the region.

Lazaridis reiterated the point made by Paul Davenport, that the most important resource in the knowledge-based economy is people, not technology. He emphasized the importance of education: "Nothing will do more to transform our future and that of our children. I don't understand why we don't invest more in education."

For Lazaridis, the best place to set up a knowledge-based company is next to a good university or college. But making the most of this resource means taking care of the graduates, researchers and students from the university. This means:

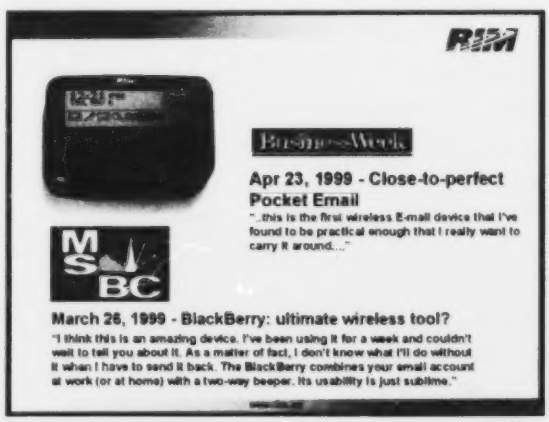
- offering rewarding careers for those who stay in the community;
- making the community a safe and interesting place to live, with good schools and other incentives for families to stay;
- working with marketing experts to promote what you do.

(Other suggestions for combating the brain drain include:-

- recognition awards and events
- increasing the profile of researchers (and investors) through the media and national and international ranking programs.)

"The brain drain is real," Lazaridis says. People head south, not just for the climate, but for the excitement and lifestyle of a place like Silicon Valley. Canada must offer something comparable. This will only happen when we truly accept the fact that "intangible assets are more valuable than tangible ones."

RIM
Manufacturing Excellence
• Highly automated SMT facility
• Dedicated to production of wireless handhelds, two-way pagers & packet data radio modems
• Best-of-breed industry leadi production equip
• Automat al recognition and inspection systems
• Quickly scalable


RIM
BusinessWeek
Apr 23, 1999 - Close-to-perfect Pocket Email
"...this is the first wireless E-mail device that I've found to be practical enough that I really want to carry it around...."
MSNBC
March 26, 1999 - BlackBerry: ultimate wireless tool?
"I think this is an amazing device. I've been using it for a week and couldn't wait to tell you about it. As a matter of fact, I don't know what I'll do without it when I have to send it back. The BlackBerry combines your email account at work (or at home) with a two-way beeper. Its usability is just sublime."

David Wolfe, Ph.D.
University of Toronto, Department of Political Science

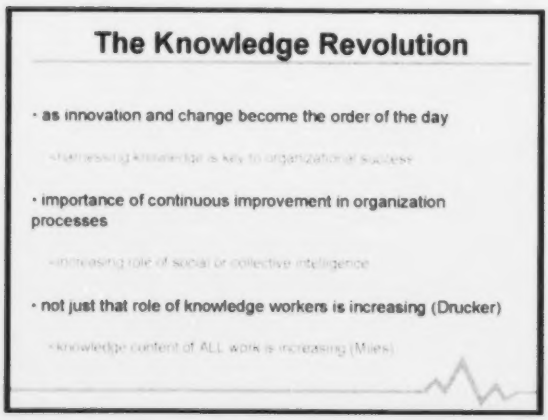
David Wolfe began his discussion of university-industry linkages by emphasizing that increasingly, innovation and improvement in industry are the results of collective intelligence, not isolated, individual efforts. He also differentiated two types of know-ledge.

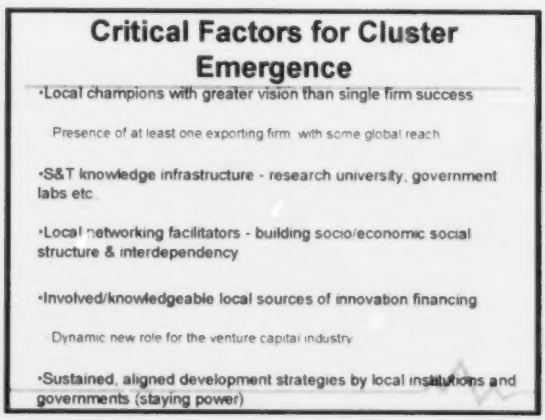
- Codified knowledge is the kind that is published in research papers, taught in university courses, and/or disseminated on the Internet. It is accessible to everyone. Yet it is only part of the knowledge that drives the knowledge economy.
- Tacit knowledge is the knowledge that is not written down, and may not even be spoken aloud. People know more than they can say. This unspoken knowledge is essential to their work and to innovation. This kind of knowledge is often local, or specific to a regional or corporate culture. Because it is less accessible than codified knowledge, it is what distinguishes different regions and companies.

Wolfe also made a distinction between R&D and innovation. Although Canada spends relatively little on R&D compared to the United States or the United Kingdom, Canadian firms still report that they are innovative. Innovation includes not just new products, new product features, and new services, but new intellectual property, new business models, new infrastructure to support businesses, and new enterprise networks.

Innovation emerges from the interaction of government programs and policies, the science and technology infrastructure, corporate R&D, business networks, the education system, the financial system, and industrial structure. Wolfe pointed out that Canada's poor record in R&D is related to its industrial structure, which was historically based on the extraction of resources.

He also stressed that the financial system influences location decisions. Many Canadian start-ups get financial capital from American sources. The conditions of financing may include a requirement to move the business to the United States so that investors can keep a close eye on their investment. This disrupts regional business clusters and networks that contribute to competitive advantage.


The Knowledge Revolution
· as innovation and change become the order of the day
· importance of continuous improvement in organization processes
· not just that role of knowledge workers is increasing (Drucker)


Critical Factors for Cluster Emergence
•Local champions with greater vision than single firm success
Presence of at least one exporting firm with some global reach
•S&T knowledge infrastructure - research university, government labs etc
•Local networking facilitators - building socio/economic social structure & interdependency
•Involved/knowledgeable local sources of innovation financing
Dynamic new role for the venture capital industry
•Sustained, aligned development strategies by local institutions and governments (staying power)

These networks are held together by intangibles such as shared knowledge, trust, culture, and "mythology." By mythology, Wolfe means shared stories about how companies developed, overcame problems, and succeeded. The social capital of a region also holds networks together, because it affects whether people want to stay in a particular place. For example, the theatre and entertainment industries in the GTA create a "buzz" that adds to the attraction of the region for people working in other industries.

Within the innovation system, government is essential, but its role is changing. It can act as a knowledge broker and facilitator, offer incentives for researchers and workers to stay in a particular place, provide the infrastructure of research, and help with the commercialization of innovative products and processes.

Wolfe acknowledge that "clusters are all the rage," but pointed out that there are two kinds of clusters. Clusters can be seen in terms of particular industries, such as the "media cluster" in the GTA, or they can be seen in regional terms, such as the Kitchener-Waterloo cluster of high-tech and manufacturing firms. However, both kinds need some kind of "anchor," a strong local champion that has global reach. Clusters also need research universities or government labs, networking facilitators, sources of financing (and knowledgeable people who can bring together firms and sources of capital) and supportive local institutions. (Clusters of institutions or "innovator jurisdictions" which can encompass several cities have been identified as important elements in building an innovation system in Ontario. These clusters are thought to be crucial in the development and recruitment of human capital, and the development, marketing, and distribution of innovative goods and services, information, and processes.)

Wolfe concluded by pointing out that external networks are linked to internal innovation. In other words, innovation is social.

Discussion

Steve Paikin of TVOntario facilitated a discussion with the three panelists. He began by asking Michael Lazaridis about the importance of taxes on the "brain drain" to the United States. Lazaridis agreed that tax incentives are much better in the United States. Companies have to remember that pay is eroded by taxes, and take this fact into consideration in offering compensation packages to employees.

David Wolfe added that the brain drain occurs at the top of most professions. Universities in particular need to think in terms of "total compensation packages," including such things as access to research facilities and facilities for students, as well as individual compensation.

One participant asked: How big is a region? Can telecommunications expand the size of the region?

David Rowe said that in the U.K. the government has determined that there are nine English regions, plus Scotland and Wales. However, people identify more with smaller sub-regions. A region is whatever hangs together economically and socially in people's minds. He has also found that many entrepreneurs want a lifestyle that lets them live close to where they work.

Michael Lazaridis offered an example. "We put our company where there are people who will make it work. We built a plant in Kitchener because there were skilled people there. When we were looking for staff, we got a lot of resumes from people in the Ottawa-Carleton-Kanata area. They didn't want to move to Kitchener-Waterloo, so we ended up opening an office in Ottawa. We locate our office where the people are."

David Wolfe added that the Silicon Valley definition of a region is: "How far do I have to drive at lunch to see the company I've invested in?" This determines what is included in the region. He added that as a political scientist, he was bound to say that governance is also significant.

Several conditions were identified as essential for successful regional innovation:

- a competitive (and collaborative) environment coupled with distinctive advantage
- global reputation and networks
- human capital
- high-quality, inter-linked, and accessible research infrastructure
- adequate "risk capital"
- public policies encouraging public investment and the creation of incentives for investment.

He noted that in many places cooperative public-private governance structures are coming into being to look after economic development concerns of the region. He also addressed the question, "Can telecommunications substitute for proximity?" His answer was, no, not really. Telecommunications are useful for transmitting codified data, but direct, personal interaction (involving tacit knowledge) requires proximity and face-to-face contact.

"Can telecommunications substitute for proximity?" No. . . . Direct, personal interaction (involving tacit knowledge) requires proximity and face-to-face contact

Another participant said he had been surprised by Michael Lazaridis's comments about finding venture capital in Canada. Is venture capital more available for information technology companies?

Lazaridis said, "Venture capital does exist in Canada, but it's difficult to find. You have to cater to it, it does not cater to you. You have to go find it. You also have to present yourself in such a way that the venture capitalists will believe in you. It's not that there's no money, but it is difficult to present business plans that are attractive to venture capital." ●

PANEL 2

Pike Powers
Fulbright and Jaworski, Austin, Texas

Pike Powers spoke of the evolution of Austin as a centre for technology research and innovation. In the 1980s, because of falling oil prices, the Texas economy had slumped, and Austin was struggling. In 1983, the city aggressively competed to become the site of the Microelectronics and Computer Technology Corporation, a private-sector, high-tech consortium. The city was chosen over 56 other American cities because of a partnership uniting city and state government, business and the University of Texas at Austin. The city knew that the key to its survival was diversifying its economy, and MCC promised to take the city in a new direction.

At first, he tried to get capital from Silicon Valley firms, but they were not interested in Austin. Now that Austin is a major player in high-tech R&D, there are 30 venture capital firms in the city

One competitive advantage was the presence of the university. Because it was smaller than MIT or Harvard, the university was able to give priority to MCC's needs. A larger institution would have too many competing priorities.

Once MCC was located in Austin, the city was also able to attract 3M to build a facility, which included research and development laboratories. The city then commissioned Stanford Research International to take a ten-month look at the city and help create a plan for the future. The report, "Creating an Opportunity Economy," was released in 1985. With the collaboration once again of business, government, and the university, the city attracted Sematech, a consortium of semiconductor manufacturers, in 1988. The university created a university research park around Sematech.

Powers talked about the importance of venture capital. At first, he tried to get capital from Silicon Valley firms, but they were not interested in Austin. Now that Austin is a major player in high-tech R&D, there are 30 venture capital firms in the city.

He also stressed the importance of having a plan, such as the one developed by SRI. "You need a plan about who you are, where you are going and how you are going to get there... Austin purposefully willed itself a new economy. Since the 1980s, Austin has created a new plan, called 'The Next Century Economy,' to look at taking Austin into the 21st century. However, at the root of Austin's success is the collaboration among different sectors and the determination of every person involved to make Austin a world leader in high-tech R&D. "We had a sense of mission and purpose. We refused to believe we couldn't do it."

Powers recommended two books and a paper about the Austin experience.

- David Gibson and Everett Rogers, R&D Collaboration on Trial, Harvard Business Press;
- Doug Hinton, Kim Walsh, John Melville, Grass Roots Leaders: How Civic Entrepreneurs are Building Prosperous Communities for a New Economy, Jossey-Bass Publishers;
- Susan Engelking, "Austin's Opportunity Economy: A Model for Collaborative Technology Development," available on the web at http://www.ci.austin.tx.us.

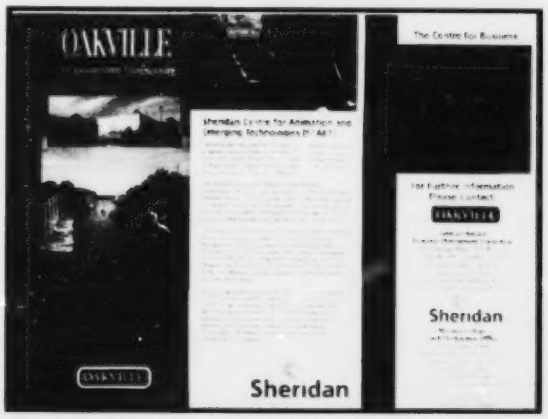
Today, Austin still faces challenges, largely those associated with its rapid growth. Transportation, health care, and workforce training are among its current priorities.

Sheldon Levy,
President, Sheridan College, Oakville

Levy began by saying that shortly after he became president of Sheridan, he went to California. He visited Industrial Light and Magic (ILM) to meet Sheridan alumni. Out of 110 animator/special effects/computer people, about 50 were Sheridan alumni. This got Levy thinking about the brain drain and wondering if the one-way trend to California could be reversed. He has been investigating the question for the past three years.

Levy showed video clips from the work of Sheridan alumni, explaining that they represented the creation of products that have intellectual value. Sheridan alumni create the software that makes special effects and animation possible. The other side is the industry created by the development of these tools.

The town of Oakville has realized that its economic development future coincides with the future of Sheridan College. The town is promoting itself as a place where digital media and computer animation businesses should locate, because it is close to the lead-



ing school that produces the necessary talent. The town's economic plan promotes the college, and the college's strategic plan promotes the town. Sheridan has even produced a promotional CD for the town, linked to Sheridan's own promotion efforts.

Sheridan is the Harvard of animation schools—on a world wide basis

—Michael Hirsh, Chair of Nelvana, Canada's largest animation studio

Sheridan's strategic plan includes developing part of the campus for incubators and small companies in the digital multimedia area. Oakville is strongly in support of this plan. Levy described the proposed incubator as "a calling card to bring back the talent from the United States and keep it in Oakville, so that they incubate their intellectual property here and then set up a company in Ontario." After all, the creators of the software want to capitalize on their own intellectual property, rather than consigning ownership to a company such as ILM.

The reason why so many Sheridan alumni go to the United States has to do with the access to risk capital. It is easy to find capital in the United States because Sheridan graduates have a good track record, but difficult to get in Canada. High taxes in Canada came second as a reason for staying in the States.

At present, Sheridan is partnering with Alias to create new products. It is also working with the Hospital for Sick Children. The hospital must communicate in about 100 languages. Until now it has used a pamphlet, but children are more likely to understand cartoons and visuals. Levy sees an opportunity for Sheridan students and graduates to create health-related multimedia products. By building up a new industry, Sheridan would be developing an area into which its graduates could move. Levy envisions a digital media studio in the HSC that creates products that marry medical and animation expertise and have international commercial value. The first one is already under way: an interactive multimedia presentation to teach children about asthma. The capital came from joint fundraising.

Levy concluded by emphasizing that in promoting Sheridan as the leading postsecondary institution in the country in its area of expertise, he is contributing to the economic health of the town, the GTA region, and the province.

Bob Adams
Director of Operations, Human Resources Development Canada, London

Bob Adams defined "community capacity building" as "the process of working with communities to maintain and build the skills, confidence and ownership required for the community to better use its assets, address its issues, and avail itself of opportunities." Before the 1990s, the government usually saw itself as doing things to communities, ideally things that were good for them. With government restructuring and cutbacks, the government now realizes it must work with communities in active collaborative partnerships.

(University and college outreach programs and partnerships with communities and other organizations in the sector are just as important as government efforts. These activities assist in creating a "culture of inquiry and knowledge" within a community and establish a basis for elevating a local, regional, national, and international profile.)

Adams acknowledged the contribution of John McKnight in the United States. McKnight was one of the first to talk about leveraging assets at the community level to help communities move in a productive direction.

Adams warned that CCB is not a program, but a strategy for leveraging financial, physical (bricks and mortar), and intellectual assets in universities and the business network to mobilize to do things communities think are important.

In CCB, roles have shifted. Governments may be followers rather than leaders. The business community must also realize that not all projects will be bottom-line-driven; some may be "softer, fuzzier, community-good" projects. The community as a whole also has to recognize the mutual interdependence of the different sectors (business, health care, education, etc.), and "come out of silos" to work together to achieve common goals. CCB is not a quick fix, it takes time, which is sometimes hard for government to accept. It's also about engagement and inclusion, not about power and control.

The government is pursuing CCB because it involves community members in community building, and because it generates a higher return on investment. The government is not the only investor in projects, but can leverage several dollars for each dollar of its own investment. The government's role in CCB is as a facilitator, convenor, information and infrastructure provider, investor, publicist (so that other communities don't have to reinvent the wheel) and community partner.

Adams mentioned several success stories:

- The Elgin Manufacturing Generator in St. Thomas helps people on employment insurance or social assistance start small businesses and involves a partnership with the Ivey School of Business, Fanshawe College, the Canadian Federation of Independent Business and other private-sector partners in the area. In the past two and a half years, it has spun off 85 new businesses and created about 110 jobs from about $1.5 million federal investment and $10.5 million additional investment from other sources.

- In Toronto, the Learning Enrichment Foundation is a "community economic development city." It occupies 100,000 square feet, works with the business community, helps train newcomers, and manages a community development portfolio of $10.5 to $12 million a year.

- Industry Canada and HRDC are also working on an export development initiative with economic development corporations, boards of trade, and chambers of commerce in 26 Ontario communities. The $3 million initiative brings expertise into these communities to help with economic and export development, identify export opportunities, and mentor business communities.

Adams also mentioned the collaborative work being done by the Niagara Enterprise Agency, the County of Oxford Information Network, the Regional Networks of Ontario, the Ontario Rural Council, the Business Retention and Expansion Initiative, and the Stratford Festival Conservatory. Each of these builds on a region's existing strengths and makes use of alliances and mentorship to promote economic development.

He ended by posing some questions for participants to consider.

- What should be the role of government in community economic development?
- What are the advantages and pitfalls of government pursuing community development as a business strategy?
- How would participants shape the next steps in discussions with stakeholders on community development? ●

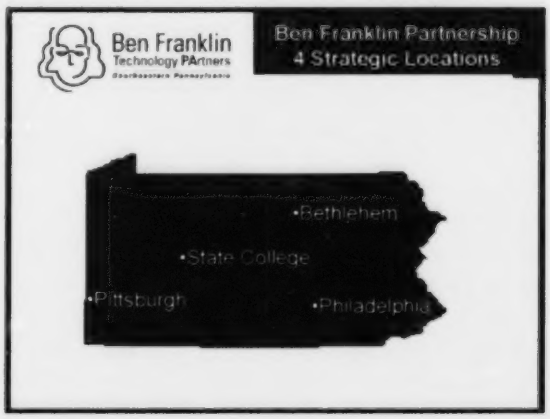
PANEL 3

RoseAnn Rosenthal
President, Ben Franklin Technology Center of Southeastern Pennsylvania

RoseAnn Rosenthal began with a quotation from Charles Darwin: "It is not the strongest that survives, nor the most intelligent; it is the one that is most adaptable to change," which, she said, reminds her that sustainability and adaptability go hand in hand.

The Ben Franklin Partnership was established in 1982 as an advanced technology centre. Pennsylvania created these advanced technology centres as university-based consortia bringing together business, universities, and government to work on R&D, training, and education with the potential to diversify Pennsylvania's economy.

The partnership is governed by a statewide board and administered by the Pennsylvania Department of Community and Economic Development. The state supports it with annual appropriations ($340 million since



1983). There are four locations in Pennsylvania near concentrations of academic and industrial research: Philadelphia, Pittsburgh, Bethlehem, and the State College site.

Rosenthal noted that within Pennsylvania, the economy differs in different regions and the partnership is designed to pursue regional strategies. Nevertheless, in all areas, the partnership provides direct investment in companies, technical assistance, and regional infrastructure for technology-based growth.

For the first 10 years of its existence, the partnership was university-based and focused on funding academic and some private-sector research. Like the U.K. Science Park and the Austin initiative, it was a response to the recession and the decline of traditional heavy industry in the area. However, this approach led to little commercialization or entrepreneurial activity and there was little public awareness of the partnership's activities.

In 1993, the program was reviewed and the centres were restructured as private, independent organizations able to make direct investments (rather than grants) in small enterprises, without university partnerships. The new approach focused less on job creation than on overall economic development within a coherent strategy. This led to increased product development and commercialization of research.

Since 1997, the program has evolved to focus on technology and rapid response to market changes. The partnership works with the Pennsylvania Technology Investment Authority and the banks on new financing mechanisms for technology companies, including support for e-commerce and digital communities as well as pre-commercialization research and development.

The partnership has a 10–year strategic plan, prepared by the Battelle Memorial Institute, which solicited feedback from the community. One of the issues that emerged was the need to get involved in student retention. The partnership has also hired a statewide coordinator to strengthen relationships among the partners, improved its marketing and branding efforts, and focused its efforts on seven industry clusters in the state.

The Ben Franklin Partnership in southeastern Pennsylvania currently has $20 million of investment in more than 200 young companies in the region. Rosenthal stressed, however, that the partnership is only part of a continuum of economic development: "We're part of it, but we're not it." It acts as a broker for knowledge-based solutions, especially for industries that are not able to do much of their own R&D, and works to increase public awareness of technology and economic development issues.

An important shift in thinking is from the government program mindset to the collaborative partner approach. At first, the attitude was that once the partnership had provided funding to a company, its work was over. Today, the attitude is the opposite: when the partnership provides funding, its work has

just begun. It works with the company until the company is able to attract private venture capital. This includes preparing companies to make presentations to venture capital companies.

Another change is in the provision of technology services. Rather than waiting for companies to approach the partnership to ask for services, Ben Franklin has established field offices across the region together with its economic development partners, so they can respond immediately as opportunities arise. Agents also call on companies routinely to identify their needs. Three extension networks – manufacturing, technology, and export – keep the partnership aware of new developments.

At first, the attitude was that once the partnership had provided funding to a company, its work was over. Today, the attitude is the opposite: when the partnership provides funding, its work has just begun

The partnership is working to make southeastern Pennsylvania an "innovation-friendly" region. A new initiative is called "venture philanthropy," whereby "alumni" reinvest in the community to keep the cycle going.

Ben Franklin employs a full-time economist, professional marketing expertise, and carries out its own research. Research topics include: the biotechnology industry, the technology-based workforce, benchmarking, women entrepreneurship in the region, and the entrepreneurial climate in the region. The partnership also works with more than 100 volunteers who help identify areas for investment.

The results include the creation of about 50,000 jobs, about 1,400 new companies, and more than 1,500 new products and processes. A study found that the partnership had boosted the economy by $2.8 billion, provided a return on the states investment of about $14 for every dollar invested, added $168 million in tax revenues, and generated about 21,700 well-paid job-years.

Rosenthal concluded with the motto, "Adapt, adapt, adapt." The partnership is continuing to change and adapt by working to become a conduit and connector among the universities, the private sector, and the government.

Tim McTiernan
President, Canadore College, North Bay

Tim McTiernan described his presentation as "the flip side of Sheldon Levy's comments." Whereas Oakville has created an economic development strategy around Sheridan's strengths, Canadore College is working to align itself with North Bay's economic development strategy. At the same time, Canadore is one of several northern Ontario colleges that are working together to redefine their roles and responsibilities.

McTiernan identified four things that colleges do. They provide:

- basic foundation skills for students and learners;
- the skills that allow people to acquire jobs in local and regional economies;
- professional and para-professional training,
- skills training in technically specialized areas.

The clients of colleges are not just students, but also communities. The challenge is how to deliver these services responsively and effectively to these two types of clients. Many colleges are located in regions that are undergoing profound transitions. These are not the large urban centres that are creating new jobs. These are the regions that are "fundamentally retooling themselves" demographically, economically, and culturally to respond to development in urban areas and to maintain viability in a global economy.

Ontario's regional development strategy, including the report, A Road Map to Prosperity, has focused on the needs and competitive conditions of smaller urban and non-urban regions, as well as the large urban regions. These regions are important, because they feed the value-added manufacturing and processing base and reduce import requirements, by supplying both natural and human resources. The regions contribute to the province's overall economic capacity. Moreover, the prosperity of the regions reduces the net tax transfer requirements to support provincial services in outlying areas.

These areas, including the areas around Thunder Bay, Sudbury, North Bay, and Peterborough, are in transition and are working to build the social and physical infrastructure required to support investment and economic transitions. Colleges can play an important role in these regions.

Colleges traditionally defined their economic development contribution in terms of providing skills to students who then get jobs in the region. Now colleges are acting as agents of economic development in their communities and regions. Northern colleges came together to redefine themselves in this way in the past year, during the meetings for the Ontario government's consultation on jobs and prosperity. They created a common mandate document that acknowledges the colleges' role as part of social infrastructure and contributors to economic development in their respective regions. Within this common mandate, northern colleges are focusing on specific areas of strength. For example:

- Collège Boréal's focus on forestry;
- Cambrian College's focus on mining technology;
- Northern College's community-based programs in the health area;
- Confederation College's Global Entrepreneurship and Electronic Commerce program.

Canadore College in North Bay is also contributing to community economic development. McTiernan said the college has "staggered" into its new role in the local economy. It required internal changes to make the college activist rather than reactive. It has rewritten the mission statement by including a responsibility to community sustainability along with its responsibility to students. It is working to encourage partnerships and greater responsiveness to community needs.

Colleges traditionally defined their economic development contribution in terms of providing skills to students who then get jobs in the region. Now colleges are acting as agents of economic development . . . .

The college has redefined its academic focus to include four key sectors:

- transportation and logistics management, including aviation;
- tourism, ecotourism, and hospitality;
- environmental technologies in industry;
- information technology.

The academic sectors link with the community's economic development plans and the region's economic strategy.

The college's strategy includes three themes that connect with the social part of the community:

- sustainable development;
- integrated community services;
- personal quality of life and well-being.

The college also hopes to support small and medium-sized businesses in the northern economy, but McTiernan acknowledged that this is a goal rather than a reality at present.

One problem faced by universities and colleges is the lack of funding for areas of research in social sciences and humanities. Investment should be applied to all disciplinary areas.

As McTiernan put it, "We ended up, sometimes by luck, sometimes by design, and sometimes by mistake in a variety of different partnership arrangements." Most are formal arrangements with written agreements that include provisions for dispute resolution. Canadore College is also located on the campus of Nipissing University, which allows for cooperative arrangements from cleaning and maintenance to blended degree programs.

McTiernan highlighted a number of programs that are based on partnerships:

- The helicopter pilot training program was restructured and relaunched after several years in abeyance. The original arrangement had lost money for the college. Now Canadore College provides the classroom training component and a private partner provides the actual air time and mechanical component of accredited helicopter pilot training for 9 to 12 students a year.

- North Bay, as NORAD headquarters, is well wired. Although NORAD has scaled back considerably, the city has gone after businesses that can use the fibre optic capacity. The city identified the need for call centre training and the college, with support from Bell Canada, S&P Data and HRDC, was able to launch a program fairly quickly. At present, the college is looking at fulfilling the need for longer-term training.
- Canadore is working with the city and business partners on the development of a transportation campus at North Bay Airport, incorporating education and training facilities.
- The college is working with the tourism sector to develop and deliver an eco-tourism management program with the Canadian Ecology Centre, a not-for-profit organization.
- The college is working with the city and business partners on an education and training council that looks at the training needs of all the main economic sectors in the community.

McTiernan concluded that Canadore College's business strategy is to fuse itself with the emerging needs of the economic sectors of the community.

Steven Kelly
President and CEO, Kingston Economic Development Corporation

Steven Kelly began by quoting from John Roth, president of Nortel Networks, who is highly critical of Canada's economic performance. Roth feels that Canada is facing a crucial challenge in a world where economic success is determined by knowledge, not by location. How do we build world-class products and companies that are globally competitive? How do we grow and retain the best and the brightest? How do we foster entrepreneurship and innovation?

Whereas Oakville has created an economic development strategy around Sheridan's strengths, Canadore College is working to align itself with North Bay's economic development strategy

Kelly feels that these questions are often interpreted as a narrow debate about the brain drain. Rather, the questions go to the heart of how wealth is created in the new economy and how critical this wealth is to sustaining the nation.

Kelly feels these questions are important to Kingston. Unlike Ottawa and Toronto, the city does not have "size on its side." In fact, many people are flocking to the large new "technopoli."

The debate is also handicapped by outdated measurements, such as R&D ratios relative to GDP. Rather than worrying about this ratio, we need to master the knowledge we have in place to create product-based enter-

prises. The debate is also trapped in the jargon of "what's good in business." The promotion of exports and fostering the growth of small and medium-sized enterprise are seen as inherent goods by those in public office. But it's more important to look at what kinds of exports and enterprises they are.

The province needs to drive economic development targets without taking over ownership of initiatives that belong at the local level

The old notion of economic development is that it is anything associated with development. The old notion of how to do economic development is that you can't do your job by staying in town, as if opportunity was always somewhere else. Institutions see economic development as recruitment; they don't see their own recruitment of corporate dollars as an economic development opportunity.

Kelly stressed the importance of focus in economic development. He pointed out that educational institutions by themselves (even ones of Queen's calibre) do not automatically lead to economic development. He added that in this time of scarce public resources and "modest attention spans," there cannot be a wide variety of initiatives in front of any organization.

He also noted that the public investment process in Canada tends to depend heavily on individual goodwill and is insufficiently transparent, which leads to inequities. The province needs to drive economic development targets without taking over ownership of initiatives that belong at the local level. By local level, he meant economic clusters, not the arbitrary definitions of regions based on political boundaries. For example, "Syracuse is a big part of my region."

Ontario should focus on creating incentives for investment instead of providing direct regulation and investment. Universities and colleges should be able to maintain academic autonomy despite government intervention.

Kingston's partnerships include:

- Queen's University's technology transfer initiative, Parteq, founded 1986, the fourth-best, university-based technology transfer initiative in North America. However, the companies it has spun off (including Neurochem, now headquartered in Montreal) have generally relocated because of their need for financing.
- Kingston Technology Exchange Centre, opened in 1986, a community-university partnership.
- Atec which draws on programs at the Royal Military College, the Canadian Forces School of Communications, Queen's, and St. Lawrence College.
- The Software Factory, an association of eight small technology companies trying to create a relationship with the university in the area of research and development into software.
- Kannet, the Kingston-area network broadband users' consortium which has passed the hurdle into the second round of the Smart Communities competition.

Kelly felt that the exponential growth opportunities lay, not just in clusters, but where clusters intersect. For example, Kingston is trying to associate the Smart Communities initiative with the High-Performance Computing Virtual Laboratory and the Integrated Circuits Virtual Laboratory (a partnership with the Canadian Microelectronics Consortium).

Just as learning means sharing information, so today wealth creation requires sharing information, not hoarding it. As a result, postsecondary institutions and business have more in common today than they used to have. This makes fruitful collaboration possible.

Kelly reiterated David Wolfe's point about "building the myth." The Jobs and Prosperity Partnership in Kingston is there to help Kingston propagate the sense in the community that the city has a role to play in the new economy and that we can generate wealth-creating businesses.

Discussion

Steve Paikin began by asking RoseAnn Rosenthal about the relationship between the Ben Franklin Partnership and the local public radio or television station.

Rosenthal replied that the media and the Ben Franklin Partnership shared a similar approach to certain issues. The media want to use digital technologies to find new ways to be relevant to the community. They are creating a new "civic space," and plan to use one channel for economic development and another for workforce development. The two groups are also collaborating on an entrepreneurial education project and on a regional planning initiative. These projects are all still in the works and have not yet produced any results. Another commonality is the fact that the network of public radio and televisions stations is organized much like the Ben Franklin Partnership: both are governed by a statewide board, so that access to one part of the partnership provides access to the whole state.

Paikin asked about the Partnership's position relative to other economic development organizations in the United States.

Rosenthal explained that the Partnership is unique in that it has for a long time invested in very early seed-stage companies. "When folks come to us, they have an idea. They very rarely have a business plan or a tangible product." Traditional economic development organizations elsewhere lend capital, but do not provide the same kind of risk capital.

Paikin asked Steven Kelly how we could compete with Silicon Valley, where as much as $15 million may be invested in a single day.

Kelly replied that we can't compete if we wallpaper over the problem with public policy that avoids the issue of creating wealth. "There's no shortage of money in this country. There's no shortage of good ideas that have market potential." The problem is the lack of an infrastructure that brings the investor and the investment together in a way that both parties understand what the opportunity is (not just the risk).

A participant asked: What's the role of non-research institutions in economic development, especially in smaller communities that don't have large research institutions? Can technology help leverage the assets of those smaller communities?

RoseAnn Rosenthal mentioned several Pennsylvania communities with small, liberal-arts colleges. The Ben Franklin Partnership is experimenting with a new model for a centre of excellence. Centres of excellence are usually associated with the transfer and diffusion of technology. But businesses face other issues – management issues, issues of international cultures, trade issues – that have nothing to do with technology. The Partnership is trying to identify capabilities in smaller colleges that can help address these questions. For example, some colleges have a focus on women's issues; women heads of universities are working with women entrepreneurs and creating a new network. In working with smaller universities, the Partnership asks "What do they have?" not "What do we need?" and "How can we connect what they have to the community?"

A participant asked about distance learning through Canadore College. Tim McTiernan replied that the college currently offers distance learning to people in remote northern communities through Contact North, the distance education network. However, the long-term plan is to find areas in the which the college or its partners have special expertise and market these as distance learning more widely than just northern Ontario, to raise revenue.

One participant raised the issue of cuts to education. Given the importance of education in the knowledge economy, she felt that education should be seen more as an investment than as an expense. David Crombie responded that all investment in all education is not necessarily a good thing. Some investments are better than others, and cuts force us to consider priorities. Some postsecondary programs do become outdated and need to be replaced or eliminated.

A participant from the University of Toronto said that in the knowledge economy, one priority is to transfer knowledge and ideas from the university to the private sector. This usually occurs within strong groups that work together. It takes a long time to build those groups, but only a short time to destroy them when the funding is not stable.

Another participant pointed out that the cuts to education had occurred early in the current government's mandate, when the economy was not doing as well as it is now. Economic times have changed and he felt that certain government decisions could also be changed.

A participant asked about small cities and towns in the hinterland that were established in an earlier economy. How can they become part of the knowledge economy, part of a city-region or a cluster? How do they get access to the engines of the economy?

Another participant responded that cities and governments still measure success in physical, bricks-and-mortar terms. Rather, they should be measuring the elements of the knowledge economy that are important: the attraction and retention of people.

A participant from Ottawa spoke about venture capital and helping small companies form. He felt that no one had yet addressed the issue of taxation. There is venture capital around, although Canadians are more conservative investors than Americans. However, Canadian capital gains taxes inhibit drawing money from an RRSP and using it as risk capital or "angel investment." He also felt that taxation was connected to the brain drain.

Another participant mentioned "educational inflation," and the fact that anyone with a high school education was likely to lose out in the knowledge economy. At the same time, we are neglecting high schools. They have not been part of the discussion. If we don't include the high schools, we are missing out an important piece of the puzzle.

David Crombie asked whether there exists in Canada a lobby group that deals with the issues discussed at this symposium – brain drain, taxation, education, venture capital – all the elements required to create competitive advantage for regions. Someone suggested the Conference Board of Canada. Another person said, "I think it exists, but in the wrong form." The Ministry of Economic Development and Trade has the Urban Economic Development Unit. If it were operating outside the Ministry, it would be ideal. It needs to be restructured.

Another participant said that one of the best-kept secrets in Ontario is the fact that Ottawa has set up a federal council in Ontario, made up of the senior representatives of each federal institution or agency. It meets monthly in Toronto and is an excellent mechanism for getting top civil servants to listen to economic development issues. They have agreed to hear about individual issues from the private and public sectors.

One participant noted that "the search for the solution is part of the reason why we will never get there." Solutions need to be tailored to the specific place and situation. We talk about innovation, but we're not good at institutional innovation. We still see a great divide between the public and private sectors, between businesses and communities. We need tailored solutions like the Ben Franklin Partnership. Ottawa has some innovative institutions created for different purposes that are constantly reinventing themselves. He also commented on education funding. It's not just about cuts, it's about "creative destruction," looking at what doesn't work and get rid of it, freeing up the capacity to do something new and continually experimenting.

It['s] important to . . . "get out the magic markers and flip charts and come up with action plans" in local communities

David Lindsay restated the importance of acting locally (as well as thinking globally). He felt that it was important to move beyond slide presentations and discussions and to "get out the magic markers and flip charts and come up with action plans" in local communities.

David Crombie closed the symposium with thanks to the organizers. ●

BIOGRAPHIES

David L. Lindsay

At the time of his presentation, David Lindsay was President and CEO of the Ontario Jobs and Investment Board, a post he assumed in 1997. Shortly after the conference in November, he was appointed to his current post as President and CEO of SuperBuild Corporation, At OJIB, Mr Lindsay advised the Premier on long-term, action-oriented strategies to prepare Ontario for future economic opportunities and challenges. Before this, he was Principal Secretary to the Premier and Principal Secretary to the Leader of the Progressive Conservative Party of Ontario.

Before working at Queen's Park, he was a public accountant with Price Waterhouse.

Dr. Paul Davenport

Dr. Paul Davenport is the 11th President and Vice-Chancellor of The University of Western Ontario. His first term has been renewed for a second term to 2004. Prior to his current position, Dr. Davenport was President of the University of Alberta.

From 1973 to 1989, he was a professor of economics at McGill Univeristy in Montreal, and also served as an Associate Dean of Graduate Studies and Vice-Principal for Planning and Computer Services.

Dr. Davenport is presently the Chair of the Council of Ontario Universities and the Chair of the Association of Canadian Universities and Colleges of Canada.

David Rowe

Mr. David Rowe is the Director of the University of Warwick Science Park, United Kingdom, which he joined at its inception in 1982. He has published papers on Science Park development and management and consulted widely both in the UK and overseas on the subject of setting up self-sustaining Science/Technology Park initiatives to achieve economic development and technology transfer objectives. Most recently he has been involved in assignments in Chatham (Greenwich University), Cranfield in North East Wales, Russia and Italy.

Before entering the field of Science Parks, he was involved for 13 year with the development and commercialisation of technology.

Michael Lazaridis

Mr. Michael Lazaridis is President, CO-CEO and founder of Research In Motion Limited. He oversees all product development and operations, and is responsible for the development and ownership of several patents. He led the research and development efforts for the first complete wireless e-mail solution for accessing corporate e-mail, the first two-way interactive pager and several more wireless communications software. Research In Motion was recently recognized as one of Canada's fastest growing high tech companies.

Mike Lazaridis received several awards, including the Technical Achievement Academy Award, the New Technology Development Award, and the High-tech Entrepreneur of the Year Award.

Dr. David Wolfe

Dr. David Wolfe is Professor of Political Science at the University of Toronto and co-director of the Program on Globalization and Regional Innovation Systems at the University's Centre for International Studies. He is currently completing a multi-year research project conducted with Meric Gertler of the Department of Geography on The Role of the Regional Innovation System in Ontario. Dr. Wolfe is currently preparing an edited volume on Innovation and Social Learning, resulting from the initiative on Institutions of the New Economy by the Canadian Institute for Advanced Research.

Dr. Wolfe holds a B.A. and M.A. in Political Science from Carleton University and a Ph.D. from the University of Toronto.

Pike Powers

Mr. Pike Powers is Partner In Charge at the law firm of Fulbright & Jaworski in Austin, Texas. He works for major corporations in the political, legislative and administrative arena in Texas. In 1994, The National Law Journal named him one of the nation's 100 most influential lawyers.

In 1996, Pike Powers was elected to a new three-year term as a Delegate at Large to the American Bar Associations' House of Delegates.

At present, Mr. Powers serves on the Board of the Austin Downtown Maintenance Organization, and on the Advisory Board of the Austin Technology Incubator. He is past Chair of the Austin Chamber of Commerce, and past member of the Board of Visitors of the University of Texas.

Sheldon H. Levy

Mr. Sheldon Levy has been President of Sheridan College since January 1997. Prior to his appointment, he was Vice-President (Institutional Affairs) at York University. He is Chair of the Government of Canada's Education Marketing Advisory Board, Chair of the Government of Ontario's Interactive Digital Media Small Business Growth Fund

Review Panel, Co-Chair of the Halton Region Committee for Canadian Unity, and a member of the Ontario Innovation Trust Board.

Mr. Levy has spoken and consulted widely on the nature of change, the role of new technologies, and the value of Canadian intellectual capital.

He received his BSc (Honours, First Class) and MA degrees from York University, and lectured in both Mathematics and Computer Science.

Bob Adams

Mr. Bob Adams is currently the Director Operations for the London area Human Resource Centres with Human Resources Development Canada (HRDC). Much of his work involves collaborative efforts with various cross-sectoral community groups aimed at enhancing social and economic goals in and around London. He has been doing this sort of work in different parts of Ontario over the past 15-20 years, working in the private, education and voluntary sectors along with his experience in government.

Mr. Adams is co-chairing an HRDC-Ontario Region team, developing a community development business strategy for the Department. He is also the past chair of Federal Rural Team in Ontario, established through the Federal Canadian Rural Partnership initiative.

RoseAnn B. Rosenthal

Mrs. RoseAnn Rosenthal is President and Chief Executive Officer of The Ben Franklin Technology Center of South Eastern Pennsylvania. She brings to her leadership role a strong belief and background in forging alliances to strengthen Southeastern Pennsylvania employment and economic development.

Previous positions include Senior Vice President for Strategic Development at the Philadelphia Industrial Development Corporation, and Acting Executive Director of the Delaware Valley Industrial Resource Center.

Mrs. Rosenthal served as a Director of the National Council for Urban Economic Development, and has served her community as a Board member of the Politz Hebrew Academy.

Dr. Tim McTiernan

Dr. Tim McTiernan is President of Canadore College of Applied Arts and Technology in North Bay, Ontario. He previously worked as a consultant and spent 15 years in a variety of positions with the Yukon Government. He was the Chief Yukon Government Negotiator for Devolution, Land Claims and Self-Government, the Deputy Minister of the Executive Council Office and Cabinet Secretary, and the Assistant Deputy Minister of Land Claims.

Tim McTiernan is a Member of the North Bay Economic Development Commission, the Executive of the Association of Canadian Community College's Canadian Presidents' Network, and is a representative of the Association of Colleges of Applied Arts and Technology of Ontario on the College University Consortium Council.

Stephen J. Kelly

Mr. Stephen Kelly has been President & CEO of the Kingston Economic Development Corporation since 1998. Prior to this position, he was Senior Director for the Ottawa Economic Development Corporation. He assigned responsibilities for operating plans and strategic planning exercises. He led key projects such as the development of the Ottawa Region's Strategic Economic Development Plan and the associated 1997-1998 Action Plan. He joined the Ottawa Economic Development Corporation as Director of Economic Issues in 1994.

In July of 1993, Mr. Kelly became the Chief of Staff to the Minister of Western Economic Diversification and Canada Post. In February of 1985, he was hired as the P.C. Party's Eastern Ontario Field Organizer.

Sheelagh Whittaker

Ms. Sheelagh Whittaker is Chair, President and Chief Executive Officer of EDS Systemhouse Inc. Chosen as Woman of the Year by Canadian Women in Radio and Television in 1992, she later received the Outstanding Executive Leadership Award from York University and an Honourary Fellowship from Ryerson Polytechnical Institute.

Ms Whittaker addressed the conference at lunch on "the true meaning of partnerships," citing both good and bad examples from her personal experience. She used the symbol of a "partners' desk" to illustrate the value of cooperation and trust, which, in her view, is an essential condition for successful public-private partnerships. A partners' desk, popular in the last century, allowed two partners to face each other across a single working surface. This worked well for those wanting to know their partner's every move. A more optimistic view is that the partners' desk symbolized the virtues of mutual support and consultation. Ms Whittaker tries to reflect the latter perspective in her firm's corporate culture and advised her audience to value the opportunities inherent in public-private partnerships.

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